CLAIMS

What is claimed is:

1. A mobile communications device comprising:

an oscillator;

a communications unit configured to receive communications data from a source, wherein the communications data includes time reference information; and

a global positioning system (GPS) unit coupled to the communications unit, wherein the GPS unit is configured to calibrate the oscillator using the time reference information and to use the oscillator to acquire GPS satellite signals.

2. The device of claim 1, further comprising an automatic frequency control (AFC) element coupled to a communications antenna to receive the time reference information, wherein the time reference information comprises a precision carrier frequency signal, and wherein the AFC is configured to generate a reference signal locked in frequency to the precision carrier frequency signal, wherein the reference signal is used to calibrate the oscillator.

3. The device of claim 2, further comprising a phase comparator that receives the reference signal and an oscillator output signal and outputs a control signal that indicates an error in the oscillator output signal.

4. The device of claim 3, further comprising a voltage controlled oscillator configured to receive the control signal and to output a GPS clock signal.

5. The device of claim 4 further comprising a downconverter that receives the GPS clock signal and a GPS satellite signal and outputs an intermediate frequency signal.

6. A mobile global positioning system (GPS) device, comprising:

a first antenna for receiving GPS signals;

a downconverter coupled to the first antenna, wherein the first antenna provides the GPS signals to the downconverter, wherein the downconverter includes an input for receiving a GPS clock signal to convert the GPS signals from a first frequency to a second frequency;

an oscillator coupled to the downconverter, wherein the oscillator outputs the GPS clock signal;

a second antenna for receiving a precision carrier frequency signal from a source; and

an automatic frequency control (AFC) circuit coupled to the second antenna to receive the precision carrier frequency signal and configured to generate a reference signal for generating the GPS clock signal.

7. The device of claim 6, further comprising a phase comparator that receives the reference signal and an oscillator output signal and outputs a control signal to the oscillator that indicates an error in the oscillator output signal.

8. The device of claim 7, further comprising a receiver coupled to the second antenna, wherein the receiver receives the precision carrier frequency signal, and further receives a data signal containing satellite data.

9. The device of claim 8, wherein the satellite data includes Doppler data related to a satellite in view of the receiver.

10. The device of claim 9, wherein the satellite data further includes an identification of a plurality of satellites in view of the receiver and a corresponding plurality of Doppler information related to the plurality of satellites.

11. The device of claim 10, wherein the satellite data further includes ephemeris data related to a satellite in view of the receiver.

12. A mobile communications device, comprising:

a GPS antenna for receiving GPS signals;

a downconverter coupled to the GPS antenna, wherein the GPS antenna provides the GPS signals to the downconverter;

an oscillator coupled to the downconverter, wherein the oscillator provides an oscillator signal; and

a communications unit, including,

a communication antenna for receiving a precision carrier frequency signal from a source; and

an automatic frequency control (AFC) circuit coupled to the communication antenna, wherein the AFC circuit provides a reference signal to calibrate the oscillator signal, wherein the oscillator signal is used to acquire the GPS signals.

13. A personal communications device comprising:

a telecommunications unit comprising a device selected from a group comprising, a code division multiple access (CDMA) device, a WCDMA device, a FDMA device, a OFDMA device, a UMTS-compatible device, a UWB-compatible device, a TDMA device, a WiFi device, a PDC device, an iDEN™ device, and a GSM device, wherein the telecommunications unit further comprises a clock source; and

a global positioning system (GPS) receiver, wherein the GPS receiver comprises a voltage controlled oscillator for generating a GPS system clock signal based upon the clock source, and a feedback loop for controlling the voltage controlled oscillator, wherein the feedback loop comprises,

a phase comparator for generating a control signal in accordance with the feedback signal and the clock source; and

a loop filter for processing the control signal and outputting the control signal to the voltage controlled oscillator.

14. The personal communications device of claim 13 wherein the clock source provides a common clock signal to the global positioning receiver and the telecommunications unit.

15. The personal communications device of claim 13 wherein the clock source comprises a crystal oscillator.

16. The personal communications device of claim 13 wherein the frequency synthesizer comprises:

a controlled oscillator having a variable output controlled by an input signal;

a frequency divider coupled to receive the output of the controlled oscillator and responsive to the output to provide a frequency divided output signal;

a phase compensation circuit coupled to receive the frequency divided output signal from the frequency divider, the phase compensation circuit responsive to the frequency divided output signal to provide an output which compensates for phase lag of the frequency divided output of the frequency divider; and

a phase detector coupled to receive an output of the phase compensation circuit and the GPS system clock signal and to output a signal proportional to a difference in phase between the output of the phase compensation circuit and the GPS system clock signal to control the controlled oscillator.

17. The personal communications device of claim 13 wherein the divider is a fractional-N divider.

18. The personal communications device of claim 13 wherein the controlled oscillator is a voltage controlled oscillator.

19. The personal communications device of claim 13 further comprising a switch for selectable engaging the feedback loop to control the voltage controlled oscillator.

20. The personal communications device of claim 13 wherein the switch is permanently set during manufacture.

21. A method of clocking GPS receiver operations comprising the steps of:

receiving a clock signal from a clock source selected from a group comprising, a code division multiple access (CDMA) device clock, a WCDMA device clock, a FDMA device clock, a OFDMA device clock, a UMTS-compatible device clock, a UWB-

compatible device clock, a TDMA device clock, a WiFi device clock, a PDC device clock, an iDEN™ device clock, and a GSM device clock;

generating a control voltage for controlling a frequency of an oscillator signal generated by a voltage controlled oscillator based upon a feedback signal by a frequency synthesizer; and

generating a system clock signal of a particular frequency in response to the control voltage, wherein the frequency synthesizer generating the feedback signal includes,

receiving the system clock signal;

frequency dividing the system clock signal by at least two integer values to generate a fractional-N divider signal over a discrete time period;

generating a variably delayed signal based upon the fractional-N divided signal within the discrete time period; and

comparing a phase of the variably delayed signal and a reference signal and varying the system clock signal according to a detected phase difference.

22. A method of clocking GPS receiver operations according to claim 21, wherein the clock source comprises a crystal oscillator.

23. A method of clocking GPS receiver operations according to claim 13, wherein the telecommunications unit comprises a CDMA based telecommunications unit.

24. A personal communications device comprising:

means for receiving a telecommunications signal selected from a group comprising, a code division multiple access (CDMA) device means, a WCDMA device means, a FDMA device means, a OFDMA device means, a UMTS-compatible device means, a UWB-compatible device means, a TDMA device means, a WiFi device means, a PDC device means, an iDEN™ device means, and a GSM device means;

means for receiving a global positioning system (GPS) signal comprising an oscillator for generating a GPS system clock signal and a feedback loop for generating and providing a control signal to the oscillator; and

means for generating a clock source signal to be provided to the means for receiving a global positioning system (GPS) signal and the means for receiving a telecommunications signal, wherein the feedback loop comprises,

a frequency synthesizer for generating a feedback signal; and

a phase comparator for generating a control signal in accordance with the feedback signal and the clock source signal.

25. A personal communications device according to claim 24 wherein the means for receiving a telecommunications signal comprises a code division multiple access (CDMA) based radio frequency receiver.

26. A personal communications device according to claim 24 wherein the means for receiving a telecommunications signal includes the means for generating a clock source signal, and wherein the means for generating a clock source signal comprises a crystal oscillator.